

REMARKS

Claims 1-16 and 18-21 are pending in the application. Claims 8, 9, and 19-20 are allowable. Claims 1-7, 10-16, 18, and 21 have been rejected.

Claims 1, 4 and 21 are currently amended to clarify that the peptide is capable of being expressed in the cells. Support of these amendments can be found in, for example, paragraph 32 of the original specification (“A ‘gene of interest’ or an ‘additional gene’ may include nucleic acids encoding viral, parasitic, tumor, bacterial, or other known immunogens which may be expressed in plants.”).

Claim Rejections—35 U.S.C. §103(a) over Bauer and Ow

Claims 1, 4, 6, 10, 12, 14, 15 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 6,534,315 issued to Bauer et al. (“Bauer”) in view of Ow (WO 93/01283) (“Ow”). The Examiner maintains that Bauer teaches all the limitations of Claim 1 and Claim 4. The Examiner appears to be of the position that the DRS in Bauer encodes a protein even though Bauer cautions should be used to prevent the DRS from being translated into a protein. Applicants respectfully disagree because Bauer specifically teaches that the DRS sequence is noncoding and that “noncoding sequence” means a sequence is not translated into the form of a peptide (Lines 45-48, Col. 4 of Bauer).

Even if the Examiner is still not convinced, Applicants have now amended Claims 1 and 4 to further clarify that each direct repeat comprises a nucleic acid sequence encoding a peptide, and that the peptide is capable of being expressed in the plant cells. Applicants believe that these amendments should overcome the rejections because the cited references taken as a whole do not teach or suggest all the limitations of the claims as amended.

At least one difference between the presently claimed invention and Bauer lies in that Bauer does not teach direct repeats that can lead to expression of the encoded peptide in the host plant. By contrast, the present invention uses a gene of interest as the direct repeats which can be coding sequences and can lead to expression of the encoded peptide. Paragraph 7 of the originally filed Specification shows the two repeats of the gene of interest flanking the selectable markers, and Paragraph 33 teaches that the gene of interest may be DNA sequences encoding therapeutically or commercially relevant proteins. Paragraphs 31 and 32 further teach expression

of a gene of interest from the direct repeat. This disclosure is in direct contrast with Bauer which teaches that the DRS sequence is noncoding, i.e., not translated into the form of a peptide.

Indeed, Bauer even teaches how the DRS should be made noncoding. (See e.g., lines 45-48, Col. 4 and lines 22-28, Col. 7 of Bauer "... made noncoding by any appropriate means such as changing the reading frame or the introduction of stop codons."). It is common knowledge that an otherwise coding sequence can be rendered non-coding by changing its reading frame and/or adding stop codons in the sequence. Thus, Bauer, if anything, teaches away from the presently claimed invention. Ow does not touch upon the subject of a direct repeat sequence (DRS) that is coding, as is presently claimed.

Lacking any teaching or suggestion of the use of DRS containing a nucleic acid sequence capable of being transcribed and translated into a peptide, Bauer and Ow, considered as a whole, do not render the amended Claims 1 and 4 obvious. Claims 6, 10, 12, 14, 15 and 18 depend from either Claim 1 or Claim 4 directly or indirectly. Withdrawal of the obviousness rejections is respectfully requested.

Claim Rejections—35 U.S.C. §103(a) over Bauer, Ow, and Lassner

Claims 2, 3, 5, 7, 11, 13, 16 and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bauer in view of Ow, and further in view of Lassner et al. US. Patent Pub. No. 2002/0035739 A1 ("Lassner").

Claims 2, 3, 5, 7, 11, 13 and 16 depend directly or indirectly from Claims 1 or 4, and necessarily incorporate all limitations of claim 1 or 4. Claim 21 recites that each direct repeat comprises a nucleic acid sequence encoding a peptide, wherein the peptide is capable of being expressed in the plant cells. As explained above, neither Bauer nor Ow teaches or suggests a genetic construct with two direct repeats wherein each direct repeat comprises a nucleic acid sequence encoding a peptide, which is capable of being expressed in the plant cells. Lassner discloses methods for producing and identifying plant disease resistance (R) genes, but fails to teach the genetic construct with two direct repeats that can lead to expression of the encoded peptide. Thus, because none of the references, either alone, or in combination, teach or suggest all the limitations of the presently amended claims, withdrawal of the obviousness rejection is respectfully requested.

Based upon the foregoing discussion, Applicants' attorney submits that the amended claims are in a form for allowance and respectfully solicits a Notice of Allowance. The Commissioner is authorized to charge the required fee for a one month extension of time to deposit account 12-0600.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Dan Cleveland, Jr.', written over a horizontal line.

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